(31.4%). The mean hospital stay was 2 ± 2 days. Oral anticoagulation was given to 25.7% of patients, while all patients received an antiplatelet regimen (aspirin alone or aspirin and ticlopidine). Procedural success rate was 100% with a major complication rate of 5.7%. Follow-up was available in 77.7% of patients. The clinically assessed patency rate was 85.7% and was 92.8% after a second dilatation for restenosis. The patency rate for the PS group was significantly higher than that of the WS group (100% vs 50%, $p < 0.01$). Oral anticoagulation did not change the long term patency rate for PS or WS ($p > 0.8$). No stent-induced embolic cerebrovascular events occurred. *Conclusion:* Subclavian artery stenting has an excellent long term clinical outcome with antiplatelet therapy alone. The procedure-related complication rate is low. PS seems to have a more favorable clinical outcome when compared to WS in the subclavian position.

1075-139 Renal Dysfunction is a Poor Prognosticator of Patient Survival After Palmaz™ Stent Revascularization for Renal Artery Stenosis

G. Dorros, M. Jaff, I. Dorros, A. Lowe, L. Mathiak. *St. Luke's Medical Center, Milwaukee, Wisconsin, USA*

Renal artery stenosis (es) (RAS) were successfully revascularized with Palmaz™ stents in 123 patients (pts) (age: 68 ± 9 years) for poorly controlled hypertension and/or preservation of renal function: 47 pts (39%) had a baseline creatinine (Cr) ≤ 1.4 mg%; 31 pts (26%) had a Cr 1.5–1.9 mg%; and 42 pts (35%) had a Cr ≥ 2.0 mg%. Six in-hospital deaths were unrelated to the procedure and occurred in pts with Cr ≥ 2.0 mg%. During 36 month followup, 22 pts died: 4 to end-stage renal disease, 10 to cardiovascular diseases, 4 to cancer, and 4 pts to other causes. The cohort's survival probability was 79 ± 4%. Survival was then assessed by stratifying pts according to baseline Cr.

Baseline Creatinine (mg%)	Survival (36 mos)	
≤ 1.4	97 ± 2	
1.5–1.9	86 ± 6	
≥ 2.0	48 ± 10	($p < 0.0001$)

Conclusions: Despite stent revascularization, RAS pts have a 70% 3 year survival, with few deaths related to end stage renal disease. However, renal dysfunction pts (Cr ≥ 2.0 mg%) have only a 48% 3 year survival which implies that renal dysfunction associated with RAS is a poor prognosticator.

1075-140 Bilateral Renal Artery Stenosis can be Effectively Treated with Palmaz™ Stent Revascularization

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Twenty-nine patients (pts) [mean age 69 ± 9 yrs., 16 males (55%)] with bilateral atherosclerotic renal artery stenosis were successfully revascularized [49/50 (98%) stenotic arteries] with Palmaz™ stents for poorly controlled hypertension and/or preservation of renal function, and were followed with regard systolic (SYST) and diastolic (DIAST) blood pressure (BP) response, the number of antihypertensive medications, creatinine (Cr), and survival. Followup data in each time interval was compared to the patient's own baseline measurements (paired comparison), so as to determine statistical significance (*$p < 0.05$).

	Baseline	6 mos.	12 mos.	24 mos.	36 mos.
SYST BP (mmHg)	165 ± 26	158 ± 25	154 ± 30	141 ± 26*	139 ± 20*
DIAST BP (mmHg)	81 ± 13	82 ± 12	80 ± 15	78 ± 10	78 ± 7
# Medications	2.3 ± 1.3	1.9 ± 1.0	1.5 ± 1.0*	1.6 ± 0.7	1.1 ± 0.5*
Creatinine (%)	1.9 ± 1.0	1.7 ± 0.9	1.7 ± 0.8	1.7 ± 1.2	1.7 ± 0.8
Survival (mg%)	–	89 ± 5	89 ± 5	79 ± 8	53 ± 16

Conclusions: Stent revascularization of pts with bilateral renal artery stenoses, at 2 and 3 years effectively lowered the systolic blood pressure, and the number of medications; while the creatinine remained stable. While stents may effectively open stenotic renal arteries, their presence appears to be a poor prognostic marker, as expressed by the 53% 3 year survival.

1075-141 Episodic Pulmonary Edema (CHF) in Association with Global Renal Ischemia from Renal Artery Stenosis (RAS): Successful Treatment by Renal Artery Stenting (PTRA)

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Of 72 patients undergoing PTRA, a subset of 20 (27%) patients presented with episodic CHF. 12/20 (60%) had "global renal ischemia", with either bilateral renal artery stenosis or a solitary functioning kidney perfused by a stenotic renal artery. 13 patients had normal left ventricular ejection fraction (LVEF) and no significant valvular abnormality, as assessed by transthoracic echocardiography. Left ventricular hypertrophy was present in 12 patients. Of the 12 patients with global renal compromise, 9 had normal or near normal LVEF but nonetheless developed acute CHF.

Results: All 20 patients underwent successful PTRA/Palmaz stent deployment under angiographic and intravascular ultrasound (IVUS) guidance. Patients had six month clinical follow up and 17/20 (85%) had angiographic, IVUS, and hemodynamic follow up. There was no recurrence of CHF in 18/20 (90

pressure dropped from 186 + 30/92 + 14 mm Hg to 147 + 16/78 + 11 mm Hg [$p \approx 0.002$] at six months, on fewer antihypertensive medications (3.7 + 1.6 reduced to 2.6 + 1.4 [$p = 0.005$]). In patients with reduced LVEF, administration of angiotensin converting enzyme inhibitors (ACE-I) after renal PTRA/stent was not associated with any deterioration of renal function.

Conclusions: (1) Episodic CHF, especially with normal LVEF, may indicate the presence of underlying renal artery stenosis. (2) Patients with global renal ischemia (bilateral renal artery stenosis or compromised flow to solitary functioning kidney) commonly may present as CHF. (3) PTRA with Palmaz stent deployment is an effective means of managing CHF associated with RAS. (4) In presence of reduced LVEF and RAS, ACE-I is better tolerated after renal artery stenting.

1076 Therapeutic Interventions in Hypertension

Wednesday, March 19, 1997, Noon–2:00 p.m.
Anaheim Convention Center, Hall E
Presentation Hour: Noon–1:00 p.m.

1076-58 Effects of Ramipril vs. Hydrochlorothiazide on Ambulatory Blood Pressure and LV Mass in Predominantly Non-White Hypertensive Patients

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To compare the efficacy of ACE inhibition and diuretic therapy in reducing blood pressure (BP) and left ventricular (LV) mass, 50 essential hypertensives (74% male, 88% non-white) were treated in a double-blind, randomized manner for six months with either ramipril (up to 20 mg) or hydrochlorothiazide (HCTZ; up to 50 mg). Echocardiography and ambulatory BP monitoring were performed at baseline and 3 and 6 months after initiation of therapy. The 22 ramipril patients were comparable to the 28 HCTZ patients at baseline in age, race, 24-hour BP and LV mass index but were more likely to be women (41 vs 14%, $p < 0.05$). Although HCTZ resulted in a greater reduction in 24-hour BP (145/93 to 132/84 vs 153/96 to 147/91 mmHg; −9.1/−9.1 vs −3.2/−4.7% change, $p < 0.05$), only treatment with ramipril resulted in decreases in LV mass (193 to 179, $p < 0.005$, vs 184 to 182 gm, NS), mass index (103.6 to 94.9, $p < 0.001$, vs 92.7 to 91.9 gm/m^2, NS) and mass/height$^{2.7}$ (48.5 to 44.8, $p < 0.005$, vs 41.1 to 40.9 gm/m$^{2.7}$, NS. LV mass decrease was attributable to a reduction in wall thicknesses but not chamber diameter. In multivariate analysis, both change in BP and drug group were independent predictors ($p < 0.03$) of change in LV mass.

In conclusion, although diuretic therapy was significantly more effective in lowering ambulatory BP in this predominantly non-white population, only therapy with ACE inhibition was associated with significant regression of LV mass.